CONTENTS OF VOLUME 51

NO. 1, JANUARY 1984

Choline Acts as Agonist and Blocker for *Aplysia* Cholinergic Synapses
D. Gardner R. L. Ruff R. L. White 1

Columnar Organization of Directionally Selective Cells in Visual Area MT of the Macaque
T. D. Albright R. Desimone C. G. Gross 16

Cerebellar Cortical Activity During Antagonist Cocontraction and Reciprocal Inhibition of Forearm Muscles *R. C. Frysinger D. Bourbonnais J. F. Kalaska A. M. Smith* 32

Topographic Factors in Distribution of Homonymous Group Ia-Afferent Input to Cat Medial Gastrocnemius Motoneurons
S. M. Lucas M. D. Binder 50

Analysis of Individual Ia-Afferent EPSPs in a Homonymous Motoneuron Pool With Respect to Muscle Topography
S. M. Lucas T. C. Cope M. D. Binder 64

Inhibition in Spinal Cord of Nociceptive Information by Electrical Stimulation and Morphine Microinjection at Identical Sites in Midbrain of the Cat *G. F. Gebhart J. Sandkühler J. G. Thalhammer M. Zimmermann* 75

Analysis of Association Fiber System in Piriform Cortex With Intracellular Recording and Staining Techniques
L. B. Haberly J. M. Bower 90

Synaptic Perturbation and Entrainment of Gastric Mill Rhythm of the Spiny Lobster *J. Ayers A. I. Selverston* 113

Neuronal Mediation of Cardiovascular Effects of Food Arousal in *Aplysia* *U. T. Koch J. Koester K. R. Weiss* 126

Responses to Head Tilt in Cat Central Vestibular Neurons. I. Direction of Maximum Sensitivity
R. H. Schor A. D. Miller D. L. Tomko 136

Responses of Single Neurons in Posterior Field of Cat Auditory Cortex to Tonal Stimulation *D. P. Phillips S. S. Orman* 147

Model of Electroretinogram b-Wave Generation: a Test of the K^+ Hypothesis *E. A. Newman L. L. Odette* 164

Announcements 183

NO. 2, FEBRUARY 1984

Absence of Somatotopic Projection of Muscle Afferents onto Motoneurons of Same Muscle
B. McKeon S. Gandevia D. Burke 185

Electrophysiology of Dentate Gyrus Granule Cells
R. A. Fricke D. A. Prince 195

A Bilateral Model for Central Neural Pathways in Vestibuloocular Reflex *H. L. Galiana J. S. Outerbridge* 210

A Reevaluation of Intervestibular Nuclear Coupling: Its Role in Vestibular Compensation
H. L. Galiana H. Flohr G. Melvill Jones 242

Postsynaptic Dorsal Column Pathway of the Rat. I. Anatomical Studies
G. J. Giesler, Jr. R. L. Nahin A. M. Madsen 260

Electrophysiology of Lateral and Dorsal Terminal Nuclei of the Cat Accessory Optic System *K. L. Grasse M. S. Cynader* 276

Mechanism of Directional Selectivity in Simple Neurons of the Cat's Visual Cortex Analyzed With Stationary Flash Sequences
L. Ganz R. Felder 294
Peripheral Neural Correlates of Magnitude of Cutaneous Pain and Hyperalgesia: Simultaneous Recordings in Humans of Sensory Judgments of Pain and Evoked Responses in Nociceptors With C-Fibers
H. E. Torebjörk R. H. LaMotte C. J. Robinson 325
Response Properties of Neurons in Posterior Parietal Cortex of Monkey During Visual-Vestibular Stimulation. I. Visual Tracking Neurons
K. Kawano M. Sasaki M. Yamashita 340
Response Properties of Neurons in Posterior Parietal Cortex of Monkey During Visual-Vestibular Stimulation. II. Optokinetic Neurons
K. Kawano M. Sasaki 352
Effects of 5-Hydroxytryptamine on Membrane Potential, Contractility, Accumulation of Cyclic AMP, and Ca^{2+} Movements in Anterior Aorta and Ventricle of *Aplysia* *M. Sawada M. Ichinose I. Ito T. Maeno D. J. McAdoo* 361
L-Glutamic Acid, a Possible Neurotransmitter to Anterior Aorta of *Aplysia* *M. Sawada D. Gibson D. J. McAdoo* 375
Spike Aftercurrents in R15 of *Aplysia:* Their Relationship to Slow Inward Current and Calcium Influx *D. V. Lewis* 387
Announcement 404

NO. 3, MARCH 1984

Announcement: Statistics Report #3 405
Anatomical and Functional Organization of Pathway From Superior Colliculus to Lateral Posterior Nucleus in Hamster
R. D. Mooney S. E. Fish R. W. Rhoades 407
Convergence onto Interneurons Subserving Primary Afferent Depolarization of Group I Afferents
E. Brink E. Jankowska B. Skoog 432
Inhibition of Primate Spinothalamic Tract Neurons by Stimulation in Periaqueductal Gray or Adjacent Midbrain Reticular Formation
K. D. Gerhart R. P. Yezierski T. K. Wilcox W. D. Willis 450
Primate Raphe- and Reticulospinal Neurons: Effects of Stimulation in Periaqueductal Gray or VPL_c Thalamic Nucleus
W. D. Willis K. D. Gerhart W. S. Willcockson R. P. Yezierski T. K. Wilcox C. L. Cargill 467
Effects of Deuterium Oxide and Galvanic Vestibular Stimulation on Visual Cortical Cell Function
S. Reinis J. P. Landolt D. S. Weiss K. E. Money 481
Rat Hippocampal Neurons in Culture: Properties of GABA-Activated Cl^- Ion Conductance *M. Segal J. L. Barker* 500
Projections of Hindlimb Dorsal Roots to Lumbosacral Spinal Cord of Cat *J. L. Culberson P. B. Brown* 516
Metabolic Variation Among α-Motoneurons Innervating Different Muscle-Fiber Types. I. Oxidative Enzyme Activity
D. W. Sickles T. G. Oblak 529
Recovery From Effects of Brief Monocular Deprivation in the Kitten
R. Malach R. Ebert R. C. Van Sluyters 538
Analysis of Intracellularly Recorded Phasic Bursting by Mammalian Neuroendocrine Cells *R. D. Andrew F. E. Dudek* 552
Tonic Neck Reflex of the Decerebrate Cat: Response of Spinal Interneurons to Natural Stimulation of Neck and Vestibular Receptors *V. J. Wilson K. Ezure S. J. B. Timerick* 567
Spinal Cord Pathways Involved in Initiation of Swimming in the Stingray, *Dasyatis sabina:* Spinal Cord Stimulation and Lesions
B. J. Williams C. A. Livingston R. B. Leonard 578

Greater Splanchnic Excitation of Primate T_1–T_5 Spinothalamic Neurons
W. S. Ammons R. W. Blair R. D. Foreman 592

NO. 4, APRIL 1984

Announcement: Statistics Report #4 605
An Electrophysiological Study of Inferior Mesenteric Ganglion of the Dog *B. F. King J. H. Szurszewski* 607
Gustatory Responses of Cortical Neurons in Rats. I. Response Characteristics
T. Yamamoto N. Yuyama T. Kato Y. Kawamura 616
Responses of Thoracic Spinothalamic and Spinoreticular Cells to Coronary Artery Occlusion
R. W. Blair W. S. Ammons R. D. Foreman 636
Integration of Retinal and Motor Signals of Eye Movements in Striate Cortex Cells of the Alert Cat
K. Toyama Y. Komatsu K. Shibuki 649
Intracellular Recording From Pectoral Fin Motoneurons of the Stingray *Dasyatis Sabina*, an Elasmobranch Fish
B. J. Williams M. H. Droge R. B. Leonard 666
Recovery and Perturbation of Paw-Shake Responses in Spinal Cats
C. Sabin J. L. Smith 680
Potassium Distribution and Membrane Potential of Sensory Neurons in the Leech Nervous System *W. R. Schlue J. W. Deitmer* 689
Control of Complex Motor Gestures: Orofacial Muscle Responses to Load Perturbations of Lip During Speech
J. H. Abbs V. L. Gracco 705
Modular Distribution of Neurons With Slowly Adapting and Rapidly Adapting Responses in Area 3b of Somatosensory Cortex in Monkeys *M. Sur J. T. Wall J. H. Kaas* 724
Light- and Voltage-Dependent Increases of Calcium Ion Concentration in Molluscan Photoreceptors *J. Connor D. L. Alkon* 745
Discharge Properties of Dorsal Medullary Inspiratory Neurons: Relation to Pulmonary Afferent and Phrenic Efferent Discharge
M. I. Cohen J. L. Feldman 753
Morphology and Synaptic Relationships of Physiologically Identified Low-Threshold Dorsal Root Axons Stained With Intra-axonal Horseradish Peroxidase in the Cat and Monkey
H. J. Ralston III A. R. Light D. D. Ralston E. R. Perl 777
Intensity and Frequency Characteristics of Pacinian Corpuscles. I. Action Potentials *S. J. Bolanowski, Jr. J. J. Zwislocki* 793
Intensity and Frequency Characteristics of Pacinian Corpuscles. II. Receptor Potentials *S. J. Bolanowski, Jr. J. J. Zwislocki* 812
Intensity and Frequency Characteristics of Pacinian Corpuscles. III. Effects of Tetrodotoxin on Transduction Process
S. J. Bolanowski, Jr. 831

NO. 5, MAY 1984

Announcement: Statistics Reports #5, #6, and #7 841
Topographic Organization of Somatosensory Corticotectal Influences in Cat *H. R. Clemo B. E. Stein* 843
Origins of Tooth Pulp-Evoked Far-Field and Early Near-Field Potentials in the Cat *W. K. Dong E. H. Chudler* 859
Functional Organization of Trigeminal Subnucleus Interpolaris: Nociceptive and Innocuous Afferent Inputs, Projections to Thalamus, Cerebellum, and Spinal Cord, and Descending Modulation From Periaqueductal Gray
H. Hayashi R. Sumino B. J. Sessle 890

Quality Coding of a Complex Odorant in an Invertebrate
C. D. Derby B. W. Ache 906
Intradendritic Recordings From Neurons of Motor Cortex of Cats
C. D. Woody E. Gruen K. McCarley 925
Human Pattern-Evoked Electroretinogram
R. F. Hess C. L. Baker, Jr. 939
Linear and Nonlinear Components of Human Electroretinogram
C. L. Baker, Jr. R. F. Hess 952
Relations Among Threshold, Spike Height, Electrode Distance, and Conduction Velocity in Electrical Stimulation of Certain Medullospinal Neurons
I. D. Hentall G. Zorman S. Kansky H. L. Fields 968
An Estimate of Minimum Number of Brain Stem Neurons Required for Inhibition of a Flexion Reflex
I. D. Hentall G. Zorman S. Kansky H. L. Fields 978
Synaptic Transmission From Muscle Afferents During Fictive Locomotion in the Mesencephalic Cat
S. J. Shefchyk R. B. Stein L. M. Jordan 986
Basal Optic Complex in the Frog (*Rana pipiens*): a Physiological and HRP Study *E. R. Gruberg K. L. Grasse* 998
Picrotoxin-Induced Epileptiform Activity in Hippocampus: Role of Endogenous Versus Synaptic Factors *J. J. Hablitz* 1011
Binaural Interactions of Single Neurons in Posterior Field of Cat Auditory Cortex *S. S. Orman D. P. Phillips* 1028
Joint and Separate Effects of Estrogen and Progesterone on Responses of Midbrain Neurons to Lordosis-Controlling Somatic Stimuli in the Female Golden Syrian Hamster
J. D. Rose S. L. Bieber 1040
Neurons With Unusual Response and Receptive-Field Properties in Upper Laminae of Cat SI Cortex
T. M. McKenna A. R. Light B. L. Whitsel 1055
Spatial and Temporal Integration in Primary Trigeminal Nucleus of Rattlesnake Infrared System
L. R. Stanford P. H. Hartline 1077
Neural Control of Vergence Eye Movements: Convergence and Divergence Neurons in Midbrain *L. E. Mays* 1091
Stimulus Rate Dependence of Regional Cerebral Blood Flow in Human Striate Cortex, Demonstrated by Positron Emission Tomography
P. T. Fox M. E. Raichle 1109

NO. 6, JUNE 1984

Signals in Vestibular Nucleus Mediating Vertical Eye Movements in the Monkey *R. D. Tomlinson D. A. Robinson* 1121
Loss of Set in Muscle Responses to Limb Perturbations During Cerebellar Dysfunction *J. Hore T. Vilis* 1137
Visuomotor Functions of Central Thalamus in Monkey. I. Unit Activity Related to Spontaneous Eye Movements
M. Schlag-Rey J. Schlag 1149
Visuomotor Functions of Central Thalamus in Monkey. II. Unit Activity Related to Visual Events, Targeting, and Fixation
J. Schlag M. Schlag-Rey 1175
Electrophysiology of Neurons of Lateral Thalamic Nuclei in Cat: Resting Properties and Burst Discharges
M. Deschênes M. Paradis J. P. Roy M. Steriade 1196
Electrophysiology of Neurons of Lateral Thalamic Nuclei in Cat: Mechanisms of Long-Lasting Hyperpolarizations
J. P. Roy M. Clercq M. Steriade M. Deschênes 1220

Relation Between Discharge Regularity and Responses to Externally Applied Galvanic Currents in Vestibular Nerve Afferents of the Squirrel Monkey
J. M. Goldberg C. E. Smith C. Fernández 1236
Activity of Commissural Interneurons in Spinal Cord of *Xenopus* Embryos *S. R. Soffe J. D. W. Clarke A. Roberts* 1257
Synaptic and Mechanical Coupling Between Type-Identified Motor Units and Individual Spindle Afferents of Medial Gastrocnemius Muscle of the Cat
J. B. Munson J. W. Fleshman J. E. Zengel G. W. Sypert 1268
Basic Functional Organization of Second Auditory Cortical Field (AII) of the Cat *C. E. Schreiner M. S. Cynader* 1284
Binaural Interaction in Low-Frequency Neurons in Inferior Colliculus of the Cat. IV. Comparison of Monaural and Binaural Response Properties
S. Kuwada T. C. T. Yin J. Syka T. J. F. Buunen R. E. Wickesberg 1306
Effects of Continuous Noise Backgrounds on Rate Response of Auditory Nerve Fibers in Cat
J. A. Costalupes E. D. Young D. J. Gibson 1326
Transmitter Identification of Pyloric Neurons: Electrically Coupled Neurons Use Different Transmitters *E. Marder J. S. Eisen* 1345
Electrically Coupled Pacemaker Neurons Respond Differently to Same Physiological Inputs and Neurotransmitters
E. Marder J. S. Eisen 1362
A Mechanism for Production of Phase Shifts in a Pattern Generator
J. S. Eisen E. Marder 1375
Response of Cerebellum to Stimulation of Telencephalon in the Catfish (*Ictalurus nebulosus*) *L. T. Lee* 1394
Rat Hippocampal Neurons in Culture: Potassium Conductances
M. Segal J. L. Barker 1409
Time-Intensity Profiles of Cutaneous Pain in Normal and Hyperalgesic Skin: a Comparison With C-Fiber Nociceptor Activities in Monkey and Human
R. H. LaMotte H. E. Torebjörk C. J. Robinson J. G. Thalhammer 1434
Announcements 1451
Indexes 1452